

## **IN THE CLAIMS**

### **Claims pending**

- At time of the Action: 1-45
- After this Response: 1-14 and 18-45

5       **Canceled or Withdrawn claims:** 15-17

This listing of claims replaces all prior versions and listings:

1. (Currently Amended) A method comprising:  
10       receiving an instruction to open an eXtensible Markup Language (XML) document;  
          searching the XML document to locate a processing instruction (PI) containing a href attribute that points to a URL;  
          discovering a solution using the URL in the PI;  
15       opening the XML document with the solution, wherein:  
          the solution includes an extensible stylesheet language (XSLT) presentation application and a XML schema;  
          the XML document can be inferred from the XML schema; and  
          portions of the XML document are logically coupled with fragments  
20       of the XML schema;  
          executing the XSLT presentation application to render a Hypertext Markup Language (HTML) electronic form containing data-entry fields associated with the coupled portions;  
          receiving, through one or more of the data-entry fields, data input by a user;  
25       validating the data input by the user with one or more of a plurality of validation rules, each of the one or more plurality of validation rules corresponding to one of said data-entry fields through which data is input by the user, each said validation rule:  
          mapping to each said validation rule's corresponding said data-entry

field by use of an entity selected from the group consisting of: an XPath expression; a declarative syntax; and an entity that is script-based; and mapping to said coupled portion to which each said validation rule's corresponding said data-entry field is associated, the mapping with an entity selected from the group consisting of: an XPath expression; an event handler; an event handler that determines when a real-time validation tool uses said validation rule; an event handler that determines when a real-time validation tool uses said validation rule before data received for said coupled portion is held by the XML document; and an event handler that determines when a real-time validation tool uses said validation rule after data received for said coupled portion is held by the XML document, and if the act of validating determines that the data input by the user is invalid, outputting indicia informing the user that the data input is invalid.

2. (Original) The method as defined in Claim 1, wherein one or more of the receiving, the searching, the examining, the discovering, the opening, and the executing of the XSLT presentation application are performed by the execution of an HTML electronic forms application that is different from the application used to create the HTML electronic form.

3. (Original) The method as defined in Claim 1, wherein:  
the executing the XSLT presentation application comprises applying an XSLT stylesheet to the XML document to create the HTML electronic form; and  
the HTML electronic form includes a plurality of HTML elements corresponding to the data-entry fields.

4. (Original) The method as defined in Claim 1, wherein:  
the searching the XML document further comprises finding the first PI in  
the XML document; and  
the first PI in the XML document includes the URL.

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5. (Previously Presented) The method as defined in Claim 1, wherein  
the solution further comprises a manifest of all files that can be used for:  
representing the XML document in the HTML electronic form;  
allowing the user to input data into the data-entry fields; and  
the act of validating the data that the user inputs into the data-entry fields.

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6. (Original) The method as defined in Claim 1, wherein the coupled  
portions contain information setting forth all possible XML documents for the  
coupled portions.

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7. (Currently Amended) The method as defined in 1, wherein the data-  
entry fields of the HTML electronic form map to a corresponding plurality of  
nodes in said coupled portions of the XML document; and the data input is input  
for storage in a corresponding said node in the XML document, and

20 further comprising outputting data in XML for viewing by the user in the  
HTML electronic form through the data-entry fields via the mapping of the data-  
entry fields from corresponding said nodes in said coupled portions of the XML  
document.

25 8. (Previously Presented) The method as defined in Claim 1, wherein  
the XML schema includes a logic application and the act of validating executes  
the logic application.

9. (Currently Amended) The method as defined in Claim 1, wherein:  
~~the act of validating is performed on the data input from the user into each~~  
~~said data-entry field with one or more of a plurality of validation rules for;~~  
~~a corresponding plurality of the nodes in the XML document; and~~  
5 ~~a corresponding plurality of the data-entry fields;~~  
the act of validating uses each said validation rule to:  
determine if the data received by input from the user into a  
corresponding said data-entry field is valid or invalid; and  
require the user to correct any data input into the corresponding said  
10 data-entry field that the validation determines to be invalid.

10. (Currently Amended) The method as defined in Claim [[9]] 1,  
wherein each said validation rule has an identity that is selected from the group  
consisting of:

15 the identity is based on a part of a schema governing a ~~corresponding said~~  
node of the corresponding coupled portion;

the identity is written in script and associated with a ~~corresponding said~~  
node of the corresponding coupled portion; and

the identity is written in a declarative syntax and associated with a  
20 ~~corresponding said node~~ of the corresponding coupled portion.

11. (Currently Amended) The method as defined in Claim [[9]] 1,  
wherein:

each said validation rule includes an alert area display and the indicia  
25 comprises the alert area display; and

the act of validating comprises using one said validation rule to determine  
that the data input from the user into a corresponding said data-entry field is  
invalid; and

the act of outputting indicia outputs the corresponding alert area display so

as to be associated with the corresponding said data-entry field.

**12.** (Original) The method as defined in Claim 11, wherein when the alert area display is output, the output includes one or more characteristics selected from the group consisting of:

graphics surrounding the corresponding said data-entry field;  
the alert area display surrounds the corresponding said data-entry field;  
the alert area display includes graphics containing a red, dashed-lined box;  
the alert area display includes graphics highlighting the data in the corresponding said data-entry field;

the alert area display surrounds the corresponding said data-entry field and includes the graphics containing a squiggly line beneath the data in the corresponding said data-entry field;

the alert area display includes text containing information about the invalid data in the corresponding said data-entry field;

the alert area display includes text containing information about the corresponding said data-entry field; and

the alert area display includes a pop-up window.

**13.** (Currently Amended) The method as defined in Claim [[9]] 1, wherein each ~~said node~~ coupled portion comprises a node that has one or more of the validation rules associated therewith.

**14.** (Currently Amended) The method as defined in Claim [[9]] 1, wherein one said validation rule includes a requirement that is selected from the group consisting of:

the data received by input from the user into a corresponding said data-entry field is to be numerical;

the data received by input from the user into a corresponding said data-

entry field is to be textual; and

the data received by input from the user into a corresponding said data-entry field ~~that references~~ is to reference another ~~said node~~ coupled portion in the XML document.

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**15.** (Canceled)

**16.** (Canceled)

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**17.** (Canceled)

**18.** (Currently Amended) The method as defined in Claim [[9]] 1, wherein each said validation rule includes:

an alert area display; and

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how the alert area display is to appear when output.

**19.** (Original) The method as defined in Claim 1, wherein the PI includes a character string of “mso-InfoPathSolution”.

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**20.** (Currently Amended) A computer-readable storage medium comprising instruction that, when executed by a computer, performs the method of Claim 1.

**21.** (Currently Amended) A method comprising:

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receiving an instruction to open an XML document;

searching the XML document to locate a processing instruction (PI) having a name;

~~examining the name of the PI to assess the likelihood that the PI includes a solution identifier for the solution; and~~

~~when the likelihood exceeds a threshold~~, discovering a solution using the name in the PI;

opening the XML document with the solution, wherein:

5 the solution includes an XSLT presentation application and an XML schema;

the XML document can be inferred from the XML schema; and

portions of the XML document are logically coupled with fragments of the XML schema;

10 executing the XSLT presentation application to render an HTML electronic form containing data-entry fields associated with the coupled portions;

receiving, through one or more of the data-entry fields, data input by a user;

15 validating the data input by the user with one or more of a plurality of validation rules, each of the one or more plurality of validation rules corresponding to one of said data-entry fields through which data is input by the user, each said validation rule:

mapping to each said validation rule's corresponding said data-entry field by use of an entity selected from the group consisting of: an XPath expression; a declarative syntax; and an entity that is script-based; and

20 mapping to said coupled portion to which each said validation rule's corresponding said data-entry field is associated, the mapping with an entity selected from the group consisting of: an XPath expression; an event handler; an event handler that determines when a real-time validation tool uses said validation rule; an event handler that determines when a real-time validation tool uses said validation rule before data received for said  
25 coupled portion is held by the XML document; and an event handler that determines when a real-time validation tool uses said validation rule after data received for said coupled portion is held by the XML document, and

if the act of validating determines that the data input by the user is invalid, outputting indicia informing the user that the data input is invalid.

22. (Original) The method as defined in Claim 21, wherein one or more of the receiving, the searching, the examining, the opening, and the executing of the XSLT presentation application are performed by the execution of an HTML electronic forms application that is different from the application used to create the HTML electronic form.

23. (Currently Amended) The method as defined in 21, wherein the data-entry fields of the HTML electronic form map to a corresponding plurality of nodes in said couple portions of the XML document; and the data input is input for storage in a corresponding said node in the XML document, and

further comprising outputting data in XML for viewing by the user in the HTML electronic form through the data-entry fields via the mapping of the data-entry fields from corresponding said nodes in said couple portions of the XML document.

24. (Original) The method as defined in Claim 21, wherein the PI includes a character string of “mso-InfoPathSolution”.

25. (Currently Amended) A computer-readable storage medium comprising instruction that, when executed by a computer, performs the method of Claim 21.



26. (Currently Amended) A method comprising:

receiving an instruction to open an XML document;

searching the XML document to locate a processing instruction (PI) having a target that includes ~~[[the]]~~ a character string that identifies an application used to

5 create an HTML electronic form associated with the XML document;

~~examining one of a URL or an URN in the PI to assess the likelihood that~~

~~the PI includes a solution identifier for the solution; and~~

~~when the likelihood exceeds a threshold, discovering a solution using the~~

~~one of a URL or an URN character string;~~

10 opening the XML document with the solution, wherein:

the solution includes an XSLT presentation application and an XML schema;

the XML document can be inferred from the XML schema; and

portions of the XML document are logically coupled with fragments

15 of the XML schema;

executing the XSLT presentation application to render the HTML electronic form containing data-entry fields associated with the coupled portions;

receiving, through one or more of the data-entry fields, data input by a user;

validating the data input by the user with one or more of a plurality of

20 validation rules, each of the one or more plurality of validation rules

corresponding to one of said data-entry fields through which data is input by the

user, each said validation rule:

mapping to each said validation rule's corresponding said data-entry

field by use of an entity selected from the group consisting of: an XPath

25 expression; a declarative syntax; and an entity that is script-based; and

mapping to said coupled portion to which each said validation rule's

corresponding said data-entry field is associated, the mapping with an

entity selected from the group consisting of: an XPath expression; an event

handler; an event handler that determines when a real-time validation tool

uses said validation rule; an event handler that determines when a real-time validation tool uses said validation rule before data received for said coupled portion is held by the XML document; and an event handler that determines when a real-time validation tool uses said validation rule after data received for said coupled portion is held by the XML document, and  
5 if the act of validating determines that the data input by the user is invalid, outputting indicia informing the user that the data input is invalid.

**27.** (Currently Amended) The method as defined in 26, wherein the  
10 data-entry fields of the HTML electronic form map to a corresponding plurality of nodes in said coupled portions of the XML document; and the data input is input for storage in a corresponding said node in the XML document, and  
further comprising outputting data in XML for viewing by the user in the HTML electronic form through the data-entry fields via the mapping of the data-  
15 entry fields from corresponding said nodes in said coupled portions of the XML document.

**28.** (Original) The method as defined in Claim 26, wherein the character string is “mso-InfoPathSolution”.  
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**29.** (Original) The method as defined in Claim 26, wherein one or more of the receiving, the searching, the examining, the discovering, the opening, and the executing of the XSLT presentation application are performed by the execution of an HTML electronic forms application that is different from the  
25 application used to create the HTML electronic form.

30. (Currently Amended) The method as defined in Claim 26, wherein:  
the assessment of the likelihood exceeds the threshold when the PI is the  
first PI in the XML document that contains a URL is the first URL; and  
the discovering a solution comprises discovering the character string in  
5 using the first a URL to discover the solution.

31. (Currently Amended) The method as defined in Claim 26, wherein:  
the assessment of the likelihood exceeds the threshold when the character  
string comprises the one of a URL or an URN is a URL having a path with a suffix  
10 that is selected from the group consisting of “.xsf” or “.xsn”.

32. (Currently Amended) A computer-readable storage medium  
comprising instruction that, when executed by a computer, performs the method of  
Claim 26.  
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33. (Currently Amended) A method comprising:  
receiving an instruction to open an XML document;  
searching the XML document to locate a processing instruction (PI) having  
a href attribute and at least one of a PI version and a product version;  
20 discovering a solution using a name associated with the href attribute PI  
version or the product version;  
opening the XML document with the solution, wherein:  
the solution includes a XSLT presentation application and a XML  
schema;  
25 the XML document can be inferred from the XML schema; and  
portions of the XML document are logically coupled with fragments  
of the XML schema;  
executing the XSLT presentation application to render an HTML electronic  
form containing data-entry fields associated with the coupled portions;

receiving, through one or more of the data-entry fields, data input by a user;  
validating the data input by the user with one or more of a plurality of  
validation rules, each of the one or more plurality of validation rules  
corresponding to one of said data-entry fields through which data is input by the  
5 user, each said validation rule:

mapping to each said validation rule's corresponding said data-entry  
field by use of an entity selected from the group consisting of: an XPath  
expression; a declarative syntax; and an entity that is script-based; and

mapping to said coupled portion to which each said validation rule's  
10 corresponding said data-entry field is associated, the mapping with an  
entity selected from the group consisting of: an XPath expression; an event  
handler; an event handler that determines when a real-time validation tool  
uses said validation rule; an event handler that determines when a real-time  
validation tool uses said validation rule before data received for said  
15 coupled portion is held by the XML document; and an event handler that  
determines when a real-time validation tool uses said validation rule after  
data received for said coupled portion is held by the XML document, and

if the act of validating determines that the data input by the user is invalid,  
outputting indicia informing the user that the data input is invalid.

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**34.** (Original) The method as defined in Claim 33, wherein one or  
more of the receiving, the searching, the examining, the discovering, the opening,  
and the executing of the XSLT presentation application are performed by the  
execution of an HTML electronic forms application that is different from the  
25 application used to create the HTML electronic form.

35. (Currently Amended) The method as defined in Claim 33,  
wherein the data-entry fields of the HTML electronic form map to a  
corresponding plurality of nodes in said coupled portions of the XML document;  
and the data input is input for storage in a corresponding said node in the XML  
5 document, and

further comprising outputting data in XML for viewing by the user in the  
HTML electronic form through the data-entry fields via the mapping of the data-  
entry fields from corresponding said nodes in said coupled portions of the XML  
document.

36. (Currently Amended) A computer-readable storage medium  
comprising instruction that, when executed by a computer, performs the method of  
Claim 33.

37. (Currently Amended) A method comprising:  
receiving an instruction to open an XML document;  
searching the XML document to locate a processing instruction (PI) ~~having~~  
~~a href attribute and at least one of a PI version and a product version;~~  
discovering a solution using a name in the PI ~~that is associated with the href~~  
20 ~~attribute;~~

opening the XML document with the solution, wherein:  
the solution includes or indicates an XSLT presentation application  
and an XML schema;

the XML document can be inferred from the XML schema; and  
25 portions of the XML document are logically coupled with fragments  
of the XML schema;

executing the XSLT presentation application to render an HTML electronic  
form containing data-entry fields associated with the coupled portions;

receiving, through one or more of the data-entry fields, data input by a user;

validating the data input by the user with one or more of a plurality of validation rules, each of the one or more plurality of validation rules corresponding to one of said data-entry fields through which data is input by the user, each said validation rule:

5           mapping to each said validation rule's corresponding said data-entry field by use of an entity selected from the group consisting of: an XPath expression; a declarative syntax; and an entity that is script-based; and

mapping to said coupled portion to which each said validation rule's corresponding said data-entry field is associated, the mapping with an  
10           entity selected from the group consisting of: an XPath expression; an event handler; an event handler that determines when a real-time validation tool uses said validation rule; an event handler that determines when a real-time validation tool uses said validation rule before data received for said coupled portion is held by the XML document; and an event handler that  
15           determines when a real-time validation tool uses said validation rule after data received for said coupled portion is held by the XML document, and  
          if the act of validating determines that the data input by the user is invalid, outputting indicia informing the user that the data input is invalid.

20           **38.**     (Original) The method as defined in Claim 37, wherein one or more of the receiving, the searching, the discovering, the opening, and the executing of the XSLT presentation application are performed by the execution of an HTML electronic forms application that is different from the application used to create the HTML electronic form.

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**39.**     (Currently Amended) The method as defined in 37, wherein the data-entry fields of the HTML electronic form map to a corresponding plurality of nodes of said coupled portions of the XML document; and the data input is input for storage in a corresponding said node in the XML document, and

further comprising outputting data in XML for viewing by the user in the HTML electronic form through the data-entry fields via the mapping of the data-entry fields from corresponding said nodes of said coupled portions of the XML document.

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**40.** (Currently Amended) A computer-readable storage medium comprising instruction that, when executed by a computer, performs the method of Claim 37.

10 **41.** (Currently Amended) A computer-readable storage medium including instructions that, when executed by a computer, perform acts comprising:

receiving an instruction to open an XML document;

15 searching the XML document to locate a processing instruction (PI) that contains an entity selected from the group consisting of:

a href attribute that points to a URL;

a name;

20 a target that includes [[the]] a character string that identifies an application used to create an HTML electronic form associated with the XML document; and

a href attribute and at least one of a PI version and a product version; discovering a solution using the entity in the PI;

opening the XML document with the solution, wherein:

25 the solution includes or indicates an XSLT presentation application and an XML schema;

the XML document can be inferred from the XML schema; and

portions of the XML document are logically coupled with fragments of the XML schema;

executing the XSLT presentation application to transform the coupled

portions of the XML document into an HTML electronic form containing data-entry fields associated with the coupled portions;

receiving, through one or more of the data-entry fields, data input by a user;

validating the data input by the user with one or more of a plurality of  
5 validation rules, each of the one or more plurality of validation rules  
corresponding to one of said data-entry fields through which data is input by the  
user, each said validation rule:

mapping to each said validation rule's corresponding said data-entry  
field by use of an entity selected from the group consisting of: an XPath  
10 expression; a declarative syntax; and an entity that is script-based; and

mapping to said coupled portion to which each said validation rule's  
corresponding said data-entry field is associated, the mapping with an  
entity selected from the group consisting of: an XPath expression; an event  
handler; an event handler that determines when a real-time validation tool  
15 uses said validation rule; an event handler that determines when a real-time  
validation tool uses said validation rule before data received for said  
coupled portion is held by the XML document; and an event handler that  
determines when a real-time validation tool uses said validation rule after  
data received for said coupled portion is held by the XML document, and  
20 if the act of validating determines that the data input by the user is invalid,  
outputting indicia informing the user that the data input is invalid.

**42.** (Original) The computer-readable medium as defined in Claim 41,  
wherein one or more of the acts are performed by the execution of an HTML  
25 electronic forms application that is different from the application used to create the  
HTML electronic form.



43. (Currently Amended) The computer-readable medium as defined in Claim 41, wherein the discovering a solution using the entity in the PI comprises ~~an act selected from the group consisting of:~~

- (i) discovering the solution using the URL in the PI;
- 5 (ii) discovering the solution using a name associated with the href attribute;
- or
- (iii) discovering the solution using a name in the PI that is associated with the href attribute; ~~and~~
- (iv) ~~a combination of the foregoing.~~

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44. (Currently Amended) The computer-readable medium as defined in Claim 41, wherein the data-entry fields of the HTML electronic form map to a corresponding plurality of nodes of said coupled portions of the XML document; and the data input is input for storage in a corresponding said node in the XML

15 document, and

further comprising outputting data in XML for viewing by the user in the HTML electronic form through the data-entry fields via the mapping of the data-entry fields from corresponding said nodes of said coupled portions of the XML document.

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45. (Original) The computer-readable medium as defined in Claim 41, wherein the character string is “mso-InfoPathSolution”.